RESPONSE TO EPA/EPD'S COMMENTS (March 8, 2021)
"Identification of Constituents of Potential Concern and Exposure Assessment – Human Health Baseline Risk Assessment Technical Memorandum for the LCP Chemicals Site, Brunswick, Georgia"

GENERAL COMMENTS

EPA General Comment #1. *Based on discussions held before and after the submission of the OU2 BRA Memo only limited "surface soil" as normally considered for a risk assessment exists in the Cell Building Area (CBA). The CBA is covered by a soil cover of varying thickness which was installed to prevent direct exposure during the Removal phase of the response at LCP. Wherever this soil cover is present equal to or more than 24 inches of thickness, it may be possible to assume there would be no contamination in the surface soil depth interval. In addition, the soil cover is underlain by the pre-existing concrete floor slabs which extend for a large percentage of the area under the soil cover. Presentation of the cut/fill map data in the BRA Memo is requested to clarify the discussion. EPA requests additional sampling of surface soil (0-24" below land surface) to determine nature and extent of any contamination with in the CBA within the surface soil and with enough density to be able to statistically determine if any contaminants detected should be evaluated in the risk assessment.*

Response: We have undertaken a detailed review of all soil depth intervals in the CBA by evaluating both the variable soil cover thickness and concrete thickness across the area. In doing so we noticed that the soil cover was mistakenly double counted. At some point in the past the database was altered to adjust the sample depths in the CBA by an assumed uniform 2-foot cap thickness. The soil depths were then adjusted again last year as part of the evaluation for the OU2 BRA Memo. The evaluation has been revised after correcting for the mistaken double counting and to also include an adjustment for the concrete slabs. Appendix A of the revised BRA memo provides details on this evaluation.

The soil Exposure Unit for the OU2 BRA is the area around the CBA that was excluded from the OU3 HHBRA. This area is slightly larger than the area where the soil cover was placed (see Figure A-1 of Appendix A of the revised BRA memo). As can be seen in Figure A-2 of this appendix, the vast majority of the CBA is covered by some soil cover; however, we estimate that approximately 14% of the CBA Exposure Unit (on the borders) have less than one foot of cover soil. Based on discussions with the EPA, a *Supplemental Site Characterization Work Plan for Operable Unit 2: Cell Building Area Surface Soil* was prepared and submitted for review on March 3, 2021.

EPA General Comment #2. *Further discussion is also needed in the OU2 BRA Memo to ensure that subsurface soil as a possible contributor through leachability to groundwater contamination is considered throughout the LCP Site. While OU3 evaluated surface soil outside of the CBA, subsurface soil contamination should be considered, discussed, and fully evaluated as a possible contributor to groundwater contamination. References to discussion and findings for the OU3 RI/BRA may be helpful and necessary to address the issue.*

Response: See the OU3 RI Report (Appendix D) and the OU3 FS Report (Section 5) for how the evaluation was made with respect to the vadose zone. The only portion of the Site soil (and thus the soil-to-groundwater leaching) not evaluated in OU3 is limited to the CBA footprint – thus this footprint remains to be evaluated with OU2. As for the condition below the high water-table

horizon (site-wide including beneath the CBA footprint), the condition of the saturated soil will be evaluated in the RI/FS (not in the BRA) in terms of serving as a source for a dissolved-phase groundwater plume.

EPA General Comment #3. *Related to the comment above, the OU2 BRA Memo should thoroughly consider, discuss, and evaluate risks related to VOCs and possible SVOCs encountered in soil borings and groundwater sampling (including Photoionization Detector or PID readings during the investigation) possibly present as a result of past fuel related operations at the LCP Site. Again, references to discussion and findings for the OU3 RI/BRA may be helpful and necessary to address the issue.*

Response: It is unclear what concern the EPA has - all constituents are being evaluated in the risk assessment. Additional text concerning OU3 has been provided in the BRA Memo.

EPA General Comment #4. *While EPA concurs with the use of Frequency of Detection as a Risk Assessment methodology in the OU2 BRA Memo in keeping with the methodologies used for the OU3 Risk Assessment, some COPCs might be better represented by considering additional sample results (i.e., a larger database) in order to better validate the statistics. To address this potential issue, EPA requests additional sampling of surface soil (as referenced in Comment #1 above) considered to add to the database. Please submit a work plan to be considered for the surface soil sampling in the general area the CBA focused in areas where the soil cover is less than 24" in thickness, as appropriate.*

Response: The COPC tables have been corrected for depth resulting in 9 or more results for most VOC and SVOC constituents in the mixed soil horizon. A work plan to obtain additional surface soil samples was provided on March 3, 2021. In the discussions with EPA regarding this additional CBA surface soil sampling, the EPA directed that the HHRA and RI/FS deliverables should proceed and that once the results of the additional sampling become available, the appropriate update(s) to those deliverables would be made.

EPA General Comment #5. *EPA concurs on the use of the surrogate assignment list which was previously approved by EPA Region 4 for the OU3 HHBRA as was proposed in the OU2 BRA Memo.*

Response: No comment/action needed.

EPA General Comment #6. *Section 4.0, Exposure Assessment of the OU BRA Memo is incomplete and appears to be a work plan, rather than a finished assessment. Section 1.0 Introduction states the following (bold added for emphasis): "Specifically,* ***the TM delivers the results of the screening*** *of the database for Site-wide groundwater and [chlor-alkali cell building area] CBA soil for identification of Constituents of Potential Concern ("COPC"),* ***as well as the Exposure Assessment****...". Section 3.0 does include the development of the database and the COPC screening methodology. However, Section 4.0 is written in the future tense and there are elements missing from a complete exposure assessment. For example, Page 8 states, "...the HHBRA will be based on unrestricted groundwater use (i.e., residential potable use)..." etc. If the intent of this section is to propose the elements that will be incorporated into a forthcoming exposure assessment, then this should be stated clearly in the introduction of the OU2 BRA Memo. Therefore, revise the OU2 BRA Memo to clarify the intent of the document.*

Response: The text of the OU2 BRA Memo has been revised to clarify that the memo contains

the inputs for the exposure assessment, but that the full exposure assessment will be completed in the HHBRA.

EPA General Comment #7. *The risk assessment methodology is not identified in Section 1.0, Introduction, of the OU2 BRA Memo. Following on from Comment #1, the 8-step or site-specific process of the baseline human health risk assessment and the guidance documents upon which it is predicated should be summarized in the introduction to the memo to ensure that all upcoming parts of the evaluation are clearly noted. If Section 4.0, Exposure Assessment is, in fact, a work plan, then a definition of each part is a key element in setting up the forthcoming document. Revise Section 1.0 of the OU2 BRA Memo to cite the steps of the risk assessment methodology and the guidance documents that will be followed.*

Response: The text of the OU2 BRA Memo has been revised to include additional text in Section 1 to address this comment.

EPA General Comment #8. *The Uncertainty Evaluation for COPCs presented in Section 3.4 is incomplete. Besides detection limits, consideration should also be given to uncertainties related to soil cover assumptions, data processing, and sample numbers/methods, as these items potentially impact the remainder of the risk assessment. Revise Section 3.4 of the OU2 BRA Memo to expand the uncertainty analysis to include uncertainties associated with other aspects of the data screening process, including those mentioned in this comment.*

Response: The Uncertainty Evaluation in the OU2 BRA Memo has been revised to include additional text to address this comment.

EPA General Comment #9. *Surrogate RSLs are not identified in the COPC selection tables, Tables 1, 2, 3 and 4. Revise these tables to include the constituents for which surrogate RSLs were assigned.*

Response: COPC selection tables have been revised.

EPA General Comment #10. *It is customary in the Introduction to preview whether an ecological risk assessment will be performed for the Site. Revise the OU2 BRA Memo to include mention of whether an ecological risk assessment will be conducted. Additionally, state whether any previous risk assessments have been conducted at OU2, and if so, summarize the results.*

Response: The OU2 BRA Memo has been revised to clarify that an ecological risk assessment is not warranted for site-wide groundwater or the CBA portion of OU2. There is no reasonable ecological exposure to the groundwater condition and as for the CBA, the area is covered with clean fill soil to a thickness precluding ecological exposure. The Memo has also been revised to include a summary of previous risk assessments.

EPA General Comment #11. *Section 2.0 Background is missing a description of the past and present Site operations. Without knowing the chemical processes and the type of manufacturing that was conducted at the LCP Chemicals facility, the selection of COPCs cannot be placed in the proper context, particularly if the eventual HHBRA will be a stand-alone document. Although currently shown in an abbreviated manner in Section 4.0, revise Section 1.0 of the OU2 BRA Memo to include descriptions of the Site operations, as well as a brief summary of the Site characterization mentioned in the Introduction. Alternatively, include a statement that the*

additional required background information will be included in the full Remedial Investigation Report.

Response: The text of the OU2 BRA Memo has been revised to state that additional information regarding past manufacturing operations will be included in the RI Report (the HHBRA will be a chapter of this report).

EPA General Comment #12. *Following on from Comment #5, the discussion of the receptor populations to be evaluated in the HHBRA lacks sufficient detail. For example, rationale to support selection of the receptor populations to be evaluated is not provided. Revise Section 4.3 of the OU2 BRA Memo to include more detailed discussion of how the receptor populations to be evaluated in the HHBRA were selected, citing applicable activity and land use assumptions.*

Response: The text of the OU2 BRA Memo has been revised to include additional details regarding receptors.

EPA General Comment #13. *There is no consideration of the potential for a vapor intrusion exposure scenario in a theoretical future onsite building structure. The fifth line of Section 4.5 Potential Exposure Pathways (Conceptual Site Model [CSM]) mentions inhalation of COPCs from groundwater as a complete exposure route, however, this suggests inhalation of VOCs from potable water use. Revise the HHBRA TM to include inhalation of VOCs via vapor intrusion as a separate, potentially complete exposure route for all receptors that are assumed to be present in an onsite building structure in the future (e.g., worker, resident).*

Response: Vapor intrusion exposure pathway has been added to the revised BRA memo. A revised CSM is included as Figure 6 (groundwater) and Figure 7 (soil) of the revised BRA memo. The EPA's VISL Calculator and exposure factors presented in revised BRA memo Appendix C will be used to calculate the risks of vapor intrusion to the Hypothetical Resident and Industrial Worker receptors.

EPA General Comment #14. *The Exposure Factors table on Page 10 is missing exposure parameters for the quantification of risks/hazards to Industrial workers and Trespassers. Although it is expected that the baseline residential case is conservative, and ultimately protective of less-exposed receptors, risk calculations should be performed for all receptors identified to be of concern. Revise the OU2 BRA Memo to add columns of variables pertinent to industrial workers and trespassers.*

Response: The Industrial Worker and Trespasser receptors have been added to the receptors. The CSMs and additional exposure factor tables have been added accordingly.

EPA General Comment #15. *The Exposure Factors table refers to the receptor that will be evaluated quantitatively as a "Const Wkr" – construction worker. However, both throughout the text and on the CSMs, this receptor is referred to as an Excavation Worker. Revise the OU2 BRA Memo to standardize the name of this receptor and correct this discrepancy.*

Response: The revised BRA Memo has been updated to remove construction worker and only reference Excavation Worker receptors.

EPA General Comment #16. *Exposure equations detailing the calculation of daily intake are not provided for review. Revise Section 4.8 of the OU2 BRA Memo to provide the equations that will*

be used and/or the source of the equations, and include the symbols cited in the exposure factors table.

Response: The revised BRA Memo states that the equations used by EPA for calculating RSL values are being used for calculation of daily doses. However, for clarity the equations themselves are included in Appendix C of the revised BRA memo.

EPA General Comment #17. *The designations on the CSM in Figure 6, Human Health Conceptual Site Model – OU2 Groundwater, are confusing and inappropriate. Although theoretically incomplete, the groundwater pathways are complete for the purposes of this HHBRA. Revise Figure 6 to remove, "Indicates incomplete pathways that are still being evaluated quantitatively" and designate all groundwater pathways as either potentially complete or incomplete.*

Response: This statement has been removed from the CSM - Figure 6 in the revised BRA memo.

EPA General Comment #18. *Following on from a comment above, Figure 6, Human Health Conceptual Site Model – OU2 Groundwater is missing construction (excavation) workers, who could be exposed to VOCs via inhalation in a trench. Revise Figure 6 to include construction (excavation) workers as future receptors for site groundwater.*

Response: The CSM has been revised consistent with the comment.

SPECIFIC COMMENTS

EPA Specific Comment #1. *Section 4.3.1, pg 8, second paragraph, sentence 3 through the end of this paragraph: "The Site is currently zoned Basic Industrial...HHBRA will be based on unrestricted groundwater use (i.e., residential potable use) per EPA Guidance (EPA, 2018)...serves as a conservative baseline evaluation of theoretical residential risk." This text paints a picture that the assessment of residential use of the groundwater is being assessed only due to very conservative guidance from EPA Region 4. In fact, this requirement for assessment of the groundwater is primarily based on the National Contingency Plan (EPA-FR 1990: "EPA expects to return usable ground waters to their beneficial uses wherever practicable...") as well as on the EPA National Risk Assessment Guidance (EPA 1989, 2010). Hence this text should be revised to reflect this wider scope of the need for protection/restoration of groundwater. The following text would be more appropriate: "Based on the current zoning for the site (Basic Industrial), as well as on Decision Documents EPA has issued for OU1 and OU3, it is not anticipated that the Site property will be developed as residential. EPA, however, always considers the potential use of the groundwater as a separate decision from the land use of the property itself. Since the state considers the groundwater underlying this site to be a source of potable water, EPA must then assess the groundwater as a potential source of residential drinking water. Accordingly, the OU2 groundwater is being assessed in a hypothetical future scenario assuming residential use of the water. The estimated scenario-specific health risks, together with health-based drinking water standards, will serve to determine if groundwater remediation needs to be considered, and if institutional control measures need to be implemented until the health protective concentrations are achieved."*

Response: The revised BRA Memo has been revised to include the following: "Based on the current zoning for the site (Basic Industrial), as well as on Record of Decision documents EPA has issued for OU1 and OU3, the Site property will be not be developed as residential. However, the

HHBRA will assess groundwater as a potential source of residential drinking water."

EPA Specific Comment #2. *Section 4.3.2, assessment of exposure to soil in the CBA: "...the HHBRA will be assess restricted and unrestricted use (i.e., residential exposure) per EPA Guidance..." For correctness and clarity, this text should be revised to read: "...the HHBRA will also assess restricted use (i.e., industrial onsite worker exposure) and unrestricted use (i.e., residential exposure) per EPA Guidance..."*

Response: The revised BRA Memo has been revised per the EPA's comment.

EPA Specific Comment #3. *Section 4.6, Table of Exposure Factors on pg 10. The receptors and the exposure factors listed in this table are incomplete and ambiguous. For the residential exposure scenario, the receptors should be "Residential Child" and "Residential Adult". This table should also include exposure factors separately for the other receptors shown in the Conceptual Site Models (Figures 6 & 7)- i.e., the "Adult Industrial Worker" and the "Trespasser". The specific age-span and the exposure frequency of the assumed Trespasser should be clearly defined/explained.*

Response: The exposure factor table has been updated and additional tables added accordingly and are included in Appendix C of the revised BRA memo. The OU2 BRA memo has been updated to provide more information on all the receptors. The trespasser will be evaluated as it was in the OU3 HHBRA, which assumes an adolescent trespasser (per EPA Region 4 guidance, aged 7-16) under current (restricted access) and future (less restricted access) scenarios. Exposure frequencies of 24 days/year and 52 days/year will be used for the current and future scenarios (respectively), which is consistent with the HHBRA for OU3.

EPA Specific Comment #4. *Tables 1 & 2, groundwater COPC selection. Units of "mg/kg (milligrams per kilogram)" are shown on these tables. Units for groundwater concentration should be mass of contaminant per volume of water (i.e., mg/L or µg/L). The RSL and MCL values listed in these tables indicate that the RSL and MCL values are in µg/L units. Please correct the units stated on the table and verify that the contaminant concentration data are in the same units as the RSL and MCL values.*

Response: COPC tables have been corrected in the revised BRA memo.

EPA Specific Comment #5. *Tables 1 & 2, groundwater COPC selection, screening of chromium. No RSL is listed here for chromium in groundwater. There are recommended EPA RSLs for trivalent chromium (Cr+3) and hexavalent chromium (Cr+6) in tap water. If no speciation of groundwater samples has been performed to determine the concentration of Cr+6, then the total chromium concentration should all be assumed to be Cr+6 for screening and assessment of groundwater (with appropriate discussion in the uncertainty section of the HHBRA regarding the uncertainty of the quantity of each form of chromium as well as the uncertainty about whether ingested chromium is carcinogenic). If this assumption results in chromium posing unacceptable health risks, speciation analysis is recommended to determine the concentration of Cr+6 in site groundwater so that the risks can be more accurately assessed.*

Response: The RSL for chromium was inadvertently left off the original COPC tables. The revised tables use the CrIII and the CrVI RSLs. Hexavalent chromium was tested in the 2012 site-wide groundwater sampling event in 18 monitoring wells (selected by the EPA), with 3 wells reporting detections: MW-504B reporting 81 ppb CrVI with 1090 ppb total Cr; MW-504B

reporting 112 ppb CrVI with 1340 ppb total Cr; and MW-510B reporting 41 ppb CrVI with 1690 ppb total Cr (*i.e.*, results ranging from 2-8% CrVI to Cr (total) where detections occurred). The COPC tables utilize the 2012 results for comparison to the hexavalent chromium RSL.

EPA Specific Comment #6. *Tables 3 & 4, CBA soil COPC selection, screening of chromium. The RSL listed for chromium in these tables is for Cr+6 in residential soil. This RSL is appropriate to use for screening of total chromium if no speciation of soil samples has been performed to determine the concentration of Cr+6. As discussed in the previous comment, if the assumption of total soil chromium all being in the Cr+6 form results in Chromium posing unacceptable health risks, speciation analysis is recommended to determine the concentration of Cr+6 in site soil.*

Response: The COPC table now includes a comparison of total chromium results to both CrIII and CrVI RSLs. No speciation has been performed on site soil.

EPA Specific Comment #7. *Section 4.3.1 Groundwater. Please define/explain the word "clean" in the first paragraph, sixth line.*

Response: Prior sampling of local residential water supply wells by the EPA (during the removal action) shows all results meet health-based criteria (e.g., MCLs) and exhibited no indication of Site-related influence (a conclusion reached by the EPA OSCs who oversaw the sampling activity).

Comments Provided by Georgia Environmental Protection Division (EPD)

EPD Comment #1) **Section 3.2.2: CBA Subsurface** *This Section mentions that a mixed soil depth of 0-5 feet below ground surface (ft bgs) will be evaluated. Since there are more detections from 2-5 ft bgs than in the 0-2 ft bgs interval, there is a concern that combining surface soil and subsurface soil to evaluate mixed soil will dilute the mixed soil exposure point concentration (EPC). Section 2.21 of EPA's Region 4 Human Health Risk Assessment Supplemental Guidance [R4HHRA][1] indicates that surface and subsurface soil (which the guidance states is typically "from the bottom of the defined depth of surface soil up to 10 feet below land surface") should be evaluated as separate media. Please justify evaluating mixed soil and/or provide correspondence where this was previously approved by EPA and EPD. If not, please evaluate surface and subsurface soil as separate media in the HHBRA.*

Response: The soil data are being treated the same as it was in the approved OU3 HHBRA. Specifically, surface soil is the 0-2 ft-bgs interval and mixed soil for the Excavation Worker is the 0-5 ft-bgs interval. A 0-5 ft-bgs interval is appropriate for an Excavation Worker as they would be exposed to soil within this entire interval, not just the 2-5 ft-bgs interval.

EPD Comment #2) **Section 3.4: Uncertainty Evaluation for COPCs** *The Memo mentions that a "designation of Potential COPC ("PCOPC") is given to constituents that were not detected, but had more than 5% of detection limits greater than the screening level". The designation of "PCOPCs" does not conform to the recommended constituent of potential concern (COPC) selection procedures outlined in Section 2.6 of EPA's Region 4 Human Health Risk Assessment Supplemental Guidance [R4HHRA][2]. Also, since the HHBRA indicates that PCOPCs will be evaluated in the risk assessment, referring to constituents as PCOPCs adds unnecessary confusion given that the term "COPCs" already refers to all constituents that are further evaluated in a risk assessment. To address this comment, please label all PCOPCs as COPCs and evaluate all COPCs in the risk assessment.*

Response: The COPC tables have been revised where the designation has been changed from PCOPC to qualitative COPCs to be consistent with the OU3 HHBRA.

EPD Comment #3) **Section 4.3.2: CBA Subsurface Receptors and Exposure** *The Memo discusses control of exposures; "...subsurface disturbance of the CBA will be prohibited and limited to minor reworking of the soil cover or addition of hardscape surface (e.g., parking or surface storage)". However, the presence of free-product mercury in the CBA will not only result in physical exposures; leaching to groundwater must also be considered.*

Response: Free product mercury occurs in the saturated zone (*i.e.*, within the aquifer matrix) beneath portions of the remaining cell building slabs. It will be evaluated in the OU2 RI/FS in terms of its product solubility as related to serving as a potential source for dissolved-phase mercury in groundwater. This is not the same as soil-to-groundwater leaching, and its inclusion in the HHBRA is not appropriate (as the resultant groundwater condition is already being evaluated

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[1] [R4HHRA] = United States, United States Environmental Protection Agency, EPA Region 4 Scientific Support Section, Superfund Division. (2018, March). *Region 4 Human Health Risk Assessment Supplemental Guidance*. Retrieved from https://www.epa.gov/sites/production/files/2018-03/documents/hhra_regional_supplemental_guidance_report-march-2018_update.pdf

[2] [R4HHRA] = United States, United States Environmental Protection Agency, EPA Region 4 Scientific Support Section, Superfund Division. (2018, March). *Region 4 Human Health Risk Assessment Supplemental Guidance*. Retrieved from https://www.epa.gov/sites/production/files/2018-03/documents/hhra_regional_supplemental_guidance_report-march-2018_update.pdf

in the HHBRA).

EPD Comment #4) **Section 4.6: Exposure Parameters** *The Memo indicates that central tendency exposure (CTE) will be evaluated in the HHBRA along with reasonable maximum exposure (RME). Since remedial decisions will only be made on RME, it is recommended that the CTE evaluation not be included in the HHBRA to reduce any confusion that may result. If the HHBRA will include a CTE evaluation, please place the evaluation into a separate section and explicitly mention in the text that remedial decisions will only be made based on RME. It is recommended that the OU2 HHBRA explicitly state that remedial decisions will only be made based on RME.*

Response: A CTE evaluation is standard practice in superfund site risk assessments and furthermore, it was conducted in the OU3 HHBRA. Thus, we respectfully request its inclusion in the OU2/CBA risk assessment for sake of completeness and consistency with OU3 and that the recommended caveat not be stated, for it should not a foregone conclusion the CTE-based evaluation has no bearing on remedial decisions.

EPD Comment #5) **Section 4.7.3: Groundwater EPC**

a) *There are concerns with the proposed approach for determining groundwater exposure point concentrations (EPCs). The RPs correctly cite EPA's Determining Groundwater Exposure Point Concentrations [GWEPC][3] when stating that EPCs should be calculated using data from groundwater wells located within the core of the plume. However, page 6 of [GWEPC] also states that "assessors need adequate characterization of the entire plume to be able to identify the core of the plume". Section 4.7.3 does not discuss if and how the plume will be characterized. Also, Section 4.2.1 of the Memo states that there is contaminant leakage from the Satilla Formation into the Ebenezer Formation and that the latter Formation has a high degree of concentration attenuation. If so, it may not be appropriate to aggregate four years of sampling results since older results may not represent current site conditions. Please address these concerns by providing additional information in the Section. Please note that if site and data considerations preclude deriving a groundwater EPC based on the upper confidence limit of the arithmetic mean (i.e. 95% UCL), [GWEPC] provides for using the maximum detected concentration as the EPC.*

Response: A site such as LCP with a complex and geographically-diverse groundwater COC condition does not lend itself to the concept of a 'plume core'. Thus, we propose to use a cumulative point (well) risk analysis using the Spatial Analysis and Decision Assistance ("SADA") software to identify the area (separate assessments for the Satilla Fm and Ebenezer Fm zones) posing the highest risk and to identify the primary COPC contributors to the risk profile, and in this manner identify the key plume types and geographic distribution of each. Specific well locations within each identified plume are captured as representing the 'core'. A detailed presentation of this evaluation is provided as added Appendix D to the revised BRA memo, and portions of that are carried forward int the main body text.

b) *The Memo mentions that the [GWEPC] expresses a preference for using data from two sampling events from the previous year to calculate the EPC. Furthermore, the Memo discusses that systematic monitoring was not conducted and the most recent available data is from 2017.*

[3] [GWEPC] = United States, United States Environmental Protection Agency, Office of Solid Waste and Emergency Response. (2014, February). *Memorandum for Determining Groundwater Exposure Point Concentrations, Supplemental Guidance* (OSWER Directive 9283.1-42). Retrieved from https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236917

Consistent with the [GWEPC] guidance's inclination to use data from the previous year, will provision be made for the collection of more recent samples? Bullets in this section also state that samples will be used from the 2017 to 2020 time period, please clarify or revise, as sampling from 2017 was used and mentioning samples post-2017 can lead to further confusion.

Response: See Appendix D of the revised BRA memo for further details regarding the groundwater data being used in the HHBRA.

c) *It appears that sufficient information is not available to characterize the core of the plume in accordance with [GWEPC]. Thus, please use the greater of the maximum detected groundwater concentration or maximum groundwater reporting limit as the groundwater EPC. In addition, address the concerns about aggregating four years of groundwater sampling results. Please add additional information in the HHBRA to address these concerns.*

Response: We disagree with the conclusion portrayed in the comment regarding insufficient information and EPD's request to use the maximum concentrations (see Appendix D of the revised BRA memo for our proposed approach and basis). The use of the maximum concentrations (regarding of geographic position on the site) is overly-conservative and inconsistent with the GWEPC directive in terms of apply reasonable maximum exposure risk principles (emphasis added).

EPD Comment #6) **Figure 5: Area Water Wells** *Please incorporate on-site production wells on Figure 5 showing the Area Water Wells.*

Response: Figure 5 has been revised to include the two remaining on-site water wells.

EPD Comment #7) **Figure 6: Conceptual Site Model – OU2 Groundwater** *The conceptual site model (CSM) only evaluates the inhalation/ingestion/dermal contact of groundwater for the hypothetical resident. Since industrial and excavation workers are expected to be present at the facility, please modify the CSM so that industrial worker and excavation worker inhalation/ingestion/dermal contact exposure to groundwater is evaluated.*

Response: Exposure of Excavation Workers to vapors emanating from groundwater to a trench will be evaluated in the HHBRA as shown in the revised CSM figure. Respectfully, we do not intend to include groundwater exposure to Industrial Workers. Honeywell is actively developing a deed restriction (per the OU3 ROD) to preclude use of groundwater on the property.

EPD Comment #8) **Tables 3 and 4: Cell Building Area (CBA) Soil COPCs Selection** *The Tables show that for both semi-volatile organic compounds (SVOCs) and volatile organic compounds (VOCs), there is only one surface soil sample and generally less than five mixed soil samples. This is not sufficient characterization of SVOCs and VOCs and is of concern given that several SVOCs and VOCs are being eliminated as COPCs based on the results of one sample; see #2a re FOD above. Section 4.2.2 indicates that polycyclic aromatic hydrocarbons (PAHs) are "ubiquitous throughout the CBA study area" and that there is a "probable petroleum smear zone caused by historical water table fluctuation" which indicates that both SVOCs and VOCs are of concern at the CBA. To ensure that there is enough information to adequately characterize the risks from SVOCs and VOCs exposure in soil, please provide a plan for further characterization (e.g. collecting more samples) of soil SVOCs and VOCs.*

Response: As described above, the appropriate depths of historical samples have been re-adjusted

to reflect the current condition. This is discussed more fully in Appendix A of the revised BRA memo. COPC tables have been revised. Using this dataset, additional subsurface soil sampling is not necessary for the mixed soil exposure as there is sufficient data for conducting the HHBRA. PAHs were analyzed in 13 samples and most other SVOCs and VOCs were analyzed in 9 or more samples. However, a work plan to obtain additional surface soil samples was provided on March 3, 2021. In the discussions with EPA regarding this additional CBA surface soil sampling, the EPA directed that the HHRA and RI/FS deliverables should proceed and that once the results of the additional sampling become available, the appropriate update(s) to those deliverables would be made.

EPD Comment #9) **Executive Summary** *Editorial consideration – please close the parenthesis after the RAGS citation in the last sentence of the Executive Summary opening paragraph.*

Response: The OU2 BRA Memo has been revised per the EPD's comment.